

Remarks

Status of application

Claims 1-24 were examined and stand rejected in view of prior art. The distinctions between Applicant's invention and the cited prior art references are discussed in detail in the following remarks. In view of the below remarks, reexamination and reconsideration are respectfully requested.

The invention

Applicant's invention comprises an entitlements system and methodology which provides the ability to define entitlements and apply them individual users and/or groups using a hierarchical entitlements structure with inheritance. The entitlements which may be defined using the solution include application-specific entitlements (e.g., performing certain functions of an application), transaction entitlements (e.g., performing certain transactions or operations on an object), and limits or limit entitlements (e.g., maximum per transactions or cumulative dollar limit for payments or other banking functions).

Applicant's solution also includes hierarchical-based roles in which a given a role may be defined to have certain entitlements. A given role may, in turn, have subroles that inherit attributes of the parent (i.e., superior role). This approach may be used to establish a hierarchy of roles, where roles inherit entitlements (permissions) from above. In accordance with the present invention, Applicant's general approach provides that the inheritance is negative (i.e., restrictive). A root node ("root") resides at the top of the inheritance hierarchy and is predefined to be enabled to perform all functions (i.e., has all entitlements). As Applicant's hierarchical entitlements structure is traversed, additional restrictions are applied. Using this approach, certain functions are enabled or restricted for given users or groups. For each function that is enabled, the function is typically associated with limit(s) and a period, thereby providing a maximum amount or volume per period as well as a fixed amount per transaction type. In this manner, individuals may be easily added to the hierarchy and enabled to perform operations, subject to established limits.

Applicant's solution determines all limits and tracks running totals of activities

per user and/or per group (e.g., division, department or the like). A particular user may be affected by any limits that have been specifically defined as applying to him or her as well as limits defined for the group that he or she belongs to, one or more parents of the group that he or she belongs to, and/or any limits set for the business. Applicant's invention provides a flexible solution to define a hierarchy of roles and to establish and enforce entitlements of these roles among multiple dimensions, thereby allowing constraint processing in a manner that achieves the business goals desired. Dimensions may be processed in different combinations along the lines of users and their groups, along the lines of hierarchical groups, along the lines of time periods, and along the lines of objects and functions (including monetary limits).

Prior art rejections

A. First Section 103 rejection: Win and Rowe

Claims 1, 4-5, 7-8, 10-16 and 18-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,1261,139 to Win (hereinafter "Win") in view of U.S. Published Application 2002/0029339 of Rowe (hereinafter "Rowe"). The Examiner's rejection of claims 1 is representative:

Re claim 1, Win teaches the limitation of a computer-implemented method for specifying and enforcing entitlements for performance of financial transactions, the method comprising:
providing a hierarchical entitlement structure with inheritance for specifying entitlements for performing financial transactions (column 4, lines 22-26; column 5, lines 7-8);
in response to a particular user request to perform a financial transaction at runtime, identifying the particular user's membership in a certain entitlement group (column 5, lines 45-55);
determining whether to allow the particular user to perform the financial transaction based on permissions and limits of said hierarchical entitlement structure applicable to the particular user's performance of the financial transaction (column 4, lines 15-18);
receiving user input for defining a plurality of entitlement groups of said hierarchical entitlement structure, wherein each entitlement group has specified permissions to perform financial transactions (column 15, lines 15-21; column 4, lines 24-26).

Win doesn't explicitly teach the limitation comprising limits on performance of said financial transactions, and membership of each user. Rowe, however, makes

this teaching (paragraph 12, lines 5-13; paragraph 14). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Rowe with those of Win as discussed above for the motivation of establishing entitlement to access the account (Rowe, abstract).

Under Section 103(a), a patent may not be obtained if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. To establish a *prima facie* case of obviousness under this section, the Examiner must establish: (1) that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) that there is a reasonable expectation of success, and (3) that the prior art reference (or references when combined) must teach or suggest all the claim limitations. (See e.g., MPEP 2142). As will be shown, the Win and Rowe references cited by the Examiner fail to meet the requisite condition of teaching or suggesting all of Applicant's claim limitations.

The Examiner equates Win's access control system which associates users with one or more administrative roles and associates each administrative role with one or more administrative privileges with Applicant's hierarchical entitlement solution which specifies entitlements and limits for performing financial transactions (Applicant's specification, paragraph [0013]). However, one initial difference between Applicant's invention and Win's solution is that Applicant's invention is focused on specifying and enforcing entitlements for performing financial transactions in a financial application (e.g., corporate banking application) (Applicant's specification, paragraph [0043]). The entitlements which may be defined using Applicant's invention include application-specific entitlements (e.g., performing certain functions of an application), transaction entitlements (e.g., performing certain transactions or operations on an object), and limits or limit entitlements (e.g., maximum dollar limit for payments or similar banking functions). (Applicant's specification, paragraph [0044]). These features are included as limitations of Applicant's claims including, for instance, the following limitations of Applicant's claim 1:

A computer-implemented method for specifying and enforcing entitlements for performance of financial transactions, the method comprising:
providing a hierarchical entitlement structure with inheritance for specifying entitlements for performing financial transactions

(Applicant's claim 1, emphasis added)

The Examiner references Win at column 4, lines 22-26 and column 5, lines 7-8 as including equivalent teachings. However, the referenced portions of Win simply describe assigning users to various roles (e.g., customers, suppliers or business partners) (Win column 4, lines 22-26), with the roles defining their information needs and rights and privileges (Win column 5, lines 7-8). Significantly, Applicant's review of the entire Win reference finds that Win makes no mention whatsoever of financial transactions or of privileges and limitations for performing financial transactions.

Additionally, Win's access control system does not include a hierarchical entitlement structure with inheritance. Instead, Win's system provides for defining roles, with each role having a set of permissions. One or more of these roles is then assigned to a given user. The difference between Win's approach and that of Applicant can be illustrated by example. Suppose, for instance, a customer service representative needs permission for performing transactions a1, a2 and a3. Furthermore, a customer service manager needs permissions for everything a customer service representative can do (i.e., a1, a2 and a3) plus c1. Additionally, assume a customer service director needs permission for everything a customer service manager can do (i.e., a1, a2, a3 and c1) plus d1. In Win's system, these permissions can be assigned one of the two ways described below.

The first approach which can be used in Win's system is to create three roles as follows (i) role csr with permissions a1, a2, a3; (ii) role csm with permission c1; and role csd with permission d1. The role csr would then be assigned to the customer service representative. The customer service manager would then be assigned two roles (csr and csm) and the customer service director would be assigned all three roles (csr, csm, csd). As illustrated, as one goes up the management chain in an organization, administration of this type of access control system becomes cumbersome due to the number of roles that need to be assigned to some users.

The second approach which can be utilized with Win's system would be to define the same three roles, but assign the privileges differently as follows: (i) role csr with permissions a1, a2, a3; (ii) role csm with permissions a1, a2, a3, c1; and (iii) role csd with permissions a1, a2, a3, c1, d1. However, consider what happens when a customer service representative needs permission to do a4, and therefore customer service managers and directors also need to do a4. This requires that all three roles be changed to add the permission to do a4, which is inconvenient and more difficult to administer.

With Applicant's hierarchical entitlement system with inheritance, in contrast, one can define an inheritance relationship between the customer service manager role and the customer service representative role and another relationship between the customer service director and the customer service manager. Each user can still have one role (e.g., customer service manager), yet gain permissions from other roles through inheritance. This makes management of permissions in a hierarchical environment such as a corporation easier to model and administer. The features of a hierarchical entitlement structure with inheritance are also included as limitations of Applicant's claims. For example, Applicant's claim 1 includes the following:

providing a hierarchical entitlement structure with inheritance for specifying entitlements for performing financial transactions;
receiving user input for defining a plurality of entitlement groups of said hierarchical entitlement structure, wherein each entitlement group has specified permissions to perform financial transactions, limits on performance of said financial transactions, and membership of each user;

(Applicant's claim 1, emphasis added)

Applicant's review of Win finds no mention whatsoever of a hierarchical entitlement structure with inheritance as described in Applicant's specification and claims. In addition, the Examiner acknowledges that Win provides no teachings of limits on performance of financial transactions and membership of users in entitlement groups of the above-described hierarchical entitlement structure. Thus, the Examiner adds Rowe for these teachings.

Turning to the teachings of Rowe, one finds that although Rowe mentions the word "limit" it does not include features for defining and enforcing limits on the

performance of financial transactions comparable to Applicant's claimed invention. Rowe describes a solution for opening a new bank or financial account with a financial provider electronically (Rowe, paragraph [0012], paragraphs [0028]-[0029]). As part of Rowe's methodology for establishing an account, a "value limit" is assigned to the account (Rowe, paragraph [0012]). This value limit is the maximum amount of funds what will be held in the account, which is typically the amount of the initial deposit into the account (Rowe, paragraph [0040]). Thus, Rowe's value limit is a single number that is assigned to an account that is checked when funds enter the account (Rowe, paragraphs [0040]-[0041]). In other words, Rowe's "value limit" is a number associated with a given financial account (e.g., bank account) and is not a limit which is tied to a user's role. In fact, Applicant's review of Rowe finds no mention of roles with permissions relating to the type and amount of financial transactions that may be performed by users having such roles.

Moreover, the limits which can be defined and enforced with Applicant's claimed invention are not single numbers associated with a given financial account. Instead, Applicant's invention enables a user or administrator to define both per-transaction limits and cumulative limits over a period of time for each type of activity being performed by users having a given role. For example, limits for each role (including those with are inherited) may be established per-transaction as well as per day, per week and/or per month for each type of activity being performed by the user. For example, Applicant's invention would allow one to define a "mass market consumer" role which has permission to pay bills up to a maximum amount of \$500 per bill, with a maximum cumulative limitation of \$2,000 per week. Another "affluent consumer" role can be defined which permits a user having such role to pay bills up to \$1,000 per bill, up to \$5,000 per week and may perform external transfers of up to \$10,000 per month. These features of defining limits are also included as limitations of Applicant's claims. For example, Applicant's claim 8 includes the following limitations:

The method of claim 1, wherein said step of defining a plurality of entitlement groups includes defining limits comprising a selected one of per-transaction limits and cumulative limits over a period of time.

(Applicant's claim 8, emphasis added)

The Examiner references Rowe at paragraphs [0012], lines 5-13 and paragraph [0014] for the corresponding teachings. However, these paragraphs simply describe a single value limit applicable to a given financial account and, therefore, are not comparable to the above-described features of Applicant's claimed invention.

All told, Win and Rowe, even when combined, do not include teachings of a hierarchical entitlement system with inheritance that enables one to define and enforce user permissions for performing financial transactions. In addition, the combined references do not include any teaching of defining both per transaction limits and cumulative limits over a period of time for each type of activity being performed by users having a given role. Therefore, as the prior art references do not teach or suggest all of the claim limitations of Applicant's claims, it is respectfully submitted that the claims distinguish over the prior art references and overcome any rejection under Section 103.

B. Second Section 103 rejection: Win, Rowe and Barkley

Claims 2-3, 6, 9 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Win (above) in view of Rowe (above), further in view of U.S. Patent 6,202,066 to Barkley (hereinafter "Barkley"). As to these claims, the Examiner continues to rely on Win and Barkley, but acknowledges that they do not teach certain limitations of these dependent claims, including limitations of a hierarchical entitlement structure in which permissions of a given entitlement group are defined by restricting permissions inherited from its parent entitlement group (Applicant's claim 2 and claim 3). The Examiner therefore adds Barkley for these teachings.

These claims are believed to be allowable for at least the reasons cited above (as to the first Section 103 rejection) pertaining to the deficiencies of Win and Rowe as to Applicant's invention. Barkley does not cure these deficiencies of Win and Rowe as it includes no teaching of a hierarchical entitlement system with inheritance that enables one to define and enforce user permissions to perform financial transactions. In addition, Applicant's claimed invention is distinguishable for the following additional reasons.

As previously discussed, Applicant's solution provides a hierarchical entitlements structure with inheritance enabling one role to inherit permissions from another role.

More particularly, Applicant's claimed invention provides for a hierarchy of roles in which roles are inherited from above (Applicant's specification, paragraph [0045]). Significantly, Applicant's approach is to structure such inheritance negatively so as to apply restrictions as one goes down in the hierarchical entitlements structure (Applicant's specification, paragraph [0045]). With Applicant's solution the root node residing at the top of the inheritance structure, for example, has all permissions and may perform all functions in the system (Applicant's specification, paragraph [0045]). As the hierarchy is traversed downward, additional restrictions are applied (Applicant's specification, paragraph [0045]). This approach of restricting inherited permissions is included, for instance, as limitations of Applicant's claim 3 as follows:

wherein said step of defining a plurality of entitlement groups includes restricting permissions inherited by an entitlement group from its parent entitlement group in said hierarchical entitlement structure.

(Applicant's claim 3, emphasis added)

Thus, Applicant's solution provides for top-down inheritance in which an entitlement group inherits permissions from its parent, but typically subject to restrictions on such permissions. Although Barkley discusses that one role may inherit from another roles, Barkley takes a bottom-up, rather than a top-down, approach to inheritance. As described at column 9, lines 48-51 of Barkley, a "manager" role has its own permissions and also inherits those permissions of its "subordinates" (Barkley, column 9, lines 48-51). Another example of Barkley's bottom-up approach to inheritance is described at column 12, lines 19-26 which describes a financial advisor role inheriting privileges from an account rep role, such that the financial advisor has the permissions necessary to function as an account rep (Barkley, column 12, lines 19-26). Thus, Barkley in fact teaches away from Applicant's top-down inheritance approach. Additionally, the Examiner also references column 11, lines 39-43 and column 13, lines 14-15 of Barkley as including teachings of restricting permissions inherited from a parent group of Applicant's claim 3. However, Applicant's review of the referenced teachings finds that while they discuss various roles having different object access privileges (e.g., to read, write or delete certain objects) they do not include teachings of restricting permissions inherited from its

parent in a hierarchical entitlement structure. Given Barkley's bottom-up approach to inheritance, this is not surprising. Additional restrictions would not typically be applied to managers, for example, on privileges that they inherit from lower level subordinates.

All told, Barkley does not cure the deficiencies of Win and Rowe as to Applicant's claimed invention. Moreover, Barkley's bottom-up approach to inheritance teaches away from Applicant's top-down inheritance methodology in which lower level entitlement groups inherit permissions from their parents subject to restrictions on such inherited permissions. Accordingly, Applicant's claims 2-3, 6, 9 and 17 are believed to distinguish over the combined references and overcome any rejection under Section 103

Any dependent claims not explicitly discussed are believed to be allowable by virtue of dependency from Applicant's independent claims, as discussed in detail above.

Conclusion

In view of the foregoing remarks and the amendment to the claims, it is believed that all claims are now in condition for allowance. Hence, it is respectfully requested that the application be passed to issue at an early date.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 925 465 0361.

Respectfully submitted,

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